

A NEW SPECIES OF *SPILOCUMA* (CUMACEA:
BODOTRIIDAE: MANCOCUMINAE) FROM
THE GULF OF MEXICO

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Abstract.—*Spilocuma watlingi*, the second member of its genus, is described from the shallow, mesohaline waters of the mouth of Mobile Bay, Alabama. *S. watlingi* can be distinguished from *S. salomani* by: (1) the dorsal thoracic keel of ovigerous females, (2) the relative lengths and spination of the thoracic appendages, (3) the reduced spination of the uropodal endopod, and (4) the pigmentation pattern.

There have been no published records of cumaceans from the coastal and estuarine waters of Alabama. During a preliminary survey of the Cumacea occurring in Mobile Bay and adjacent areas we collected specimens of a new species referable to *Spilocuma* Watling, 1977.

Watling (1977) created the subfamily Mancocuminae to accommodate *Pseudoleptocuma* Watling, 1977; *Mancocuma* Zimmer, 1943; and *Spilocuma* Watling, 1977. The members of this subfamily are characterized by the males having less than 4 pairs of pleopods. *Pseudoleptocuma* is represented by a single species, *P. minor* (Calman, 1912), having a male with 3 pairs of well developed pleopods. The genus *Mancocuma* contains 2 species, *M. altera* Zimmer, 1943 and *M. stellifera* Zimmer, 1943, both having males with 2 pairs of reduced pleopods. Pleopods are absent in the genus *Spilocuma*, which contains *S. salomani* Watling, 1977 and the new species described in this report.

Specimens used in this study were collected at night (2100–2400 hours) by handtowing a #6 (243 μ m mesh), 0.5 meter plankton net in 1.0 to 1.5 meters of water. Collections were made 7 October and 14 October 1977 along the southern beaches of the eastern tip and middle of Dauphin Island, Mobile County, Alabama. Total length (T.L.) was measured from the inferolateral edge of the carapace to the end of pleonite 6.

Spilocuma watlingi, new species

Material examined.—14♂♂ (T.L. 1.9–2.7 mm), 15 ovigerous ♀♀ (T.L. 3.0–4.0 mm), 27 nonovigerous ♀♀ (T.L. 2.2–3.5 mm); southeastern end of Dauphin Island, Alabama (30°14'21"N, 88°4'42"W); night 7 October 1977; 1.0–1.5 meters. 3 ♂♂ (T.L. 2.0–2.6 mm), 1 ovigerous ♀ (T.L. 3.4 mm), 3 nonovigerous ♀♀ (T.L. 2.7–3.4 mm); middle of Dauphin Island, Alabama

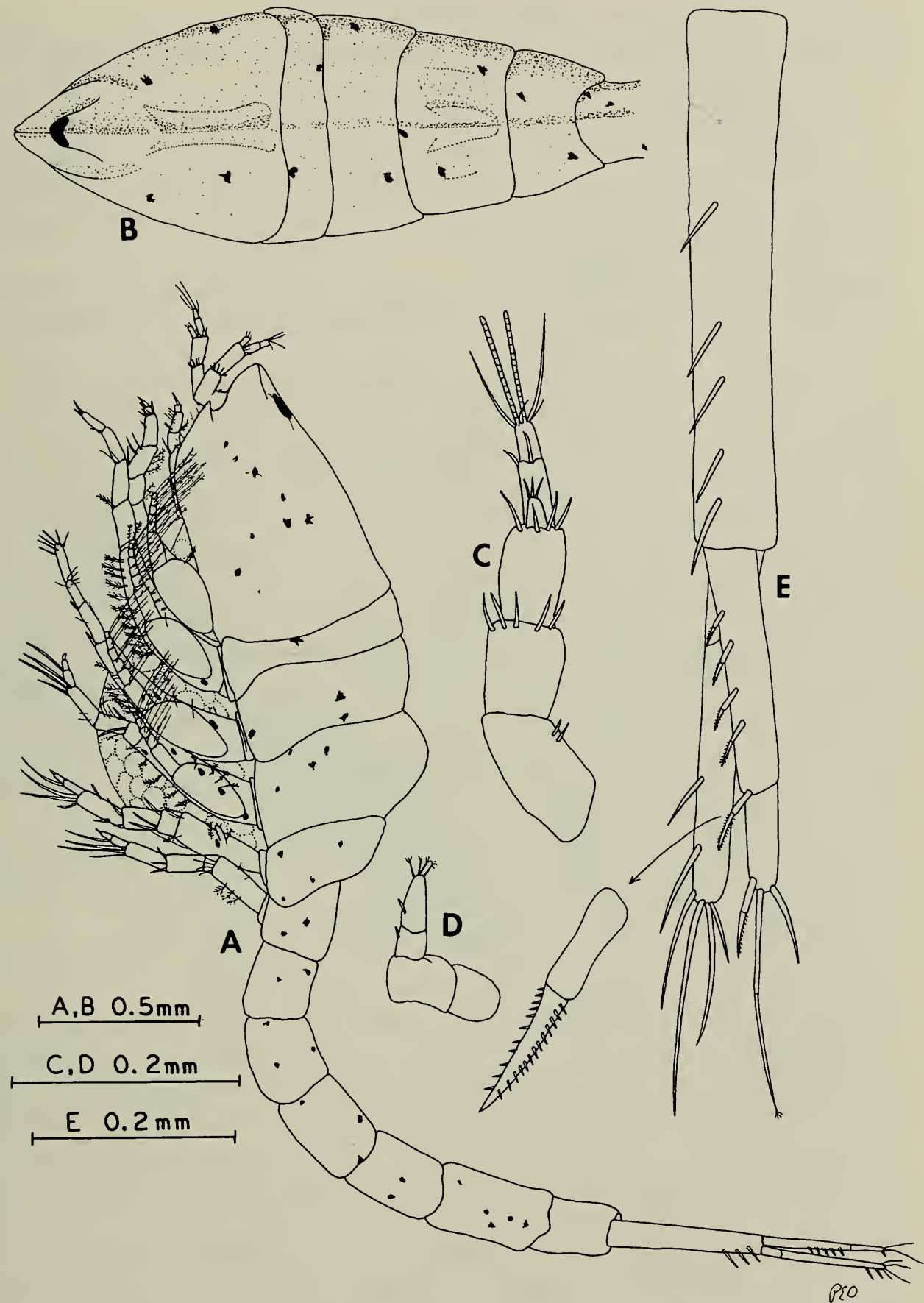


Fig. 1. *Spilocuma watlingi*, new species, ovigerous female: A, Lateral view; B, Dorsal view of carapace and thoracic somites; C, Left antenna 1, dorsal view; D, Left antenna 2, dorsal view; E, Uropod, internal lateral view.

(30°14'42"N, 88°11'36"W); night 14 October 1977; 1.0–1.5 meters. Collections made by handtowing a #6 (243 μ m mesh), 0.5 meter plankton net; coll. P. E. Omholt and R. W. Heard.

Diagnosis.—Female (ovigerous): Third thoracic somite forming distinct keel. Antenna 1, flagellum nearly equal to peduncle segment 3. Antenna 2, second article without setae or spines. Maxilliped 3, carpus with 7–8 internal spines; propodus with 4 internal spines. Uropod, endopod basal segment with 4–6 spines on inner margin.

Male: Dorsal keel absent. Antenna 1, articles 1, 2 and accessory flagellum subequal in length. Uropod, endopod basal segment with 5–6 serrated spines on inner margin.

Description.—(Based on 16 adult specimens) Ovigerous female (Fig. 1 A and B). T.L. 3.0–4.0 mm. Carapace, $\frac{1}{4}$ total length, extending a short distance in front of ocular lobes; inferolateral edge smooth with small antennal sinus. All thoracic somites visible in dorsal view. All ovigerous females with third thoracic somite forming distinct keel. Dark chromatophores cover carapace and all thoracic and pleon somites except pleonite 6.

Antenna 1 (Fig. 1C): Peduncle articles 2 and 3 subequal and together $\frac{2}{3}$ longer than article 1; article 1 with 2–3 short lateral spines; article 2 ringed with 7–8 strong distal spines; article 3 ringed with 5–7 distal spines. Main flagellum of 2 articles; distal article $\frac{1}{2}$ basal article and together subequal to peduncle article 2; basal article with 1–3 short distal spines; distal article terminating in 1–3 short and 2 long setae plus 2 segmented aesthetascs. Accessory flagellum uniarticulate, $\frac{1}{2}$ length basal article of main flagellum; armed with 3 terminal spines.

Antenna 2 (Fig. 1D): Small and of 4 articles. Article 3, $\frac{1}{2}$ length article 4, together $\frac{2}{3}$ combined lengths of articles 1 and 2; armed with 1 small lateral spine. Article 4 with 1 lateral and 4 terminal brush setae.

Labium (Fig. 2A): Small, of 2 lateral lobes connected at base; densely ciliated along inner edge and outer part of exterior margin.

Mandibles (Fig. 2B): Normal in shape; pars molaris large and for grinding; 5 recurved spines along inner margin between pars incisiva and pars molaris. Pars incisiva of left mandible with 5 small teeth; right mandible with 4 small teeth. Well developed lacinia mobilis on left mandible, rudimentary on right.

Maxillula (Fig. 2C): Small and of 2 lobes; outer masticatory lobe with 8–11 terminal spines; inner lobe shorter, with 5–6 curved terminal spines. Palp on basal part of exterior lobe, turning backward terminating in 2 long setae.

Maxilla (Fig. 2D): Basis with 2 masticatory expansions; anterior expansion with numerous spines; posterior expansion with 8–9 spines. Biarticulate palp originating near basis and directed anteriorly; both lobes similarly armed with curved spines.

First maxilliped (Fig. 2E): Endopod of 5 articles. Basis greater than combined lengths of remaining articles; distal internal angel with 3 rows of

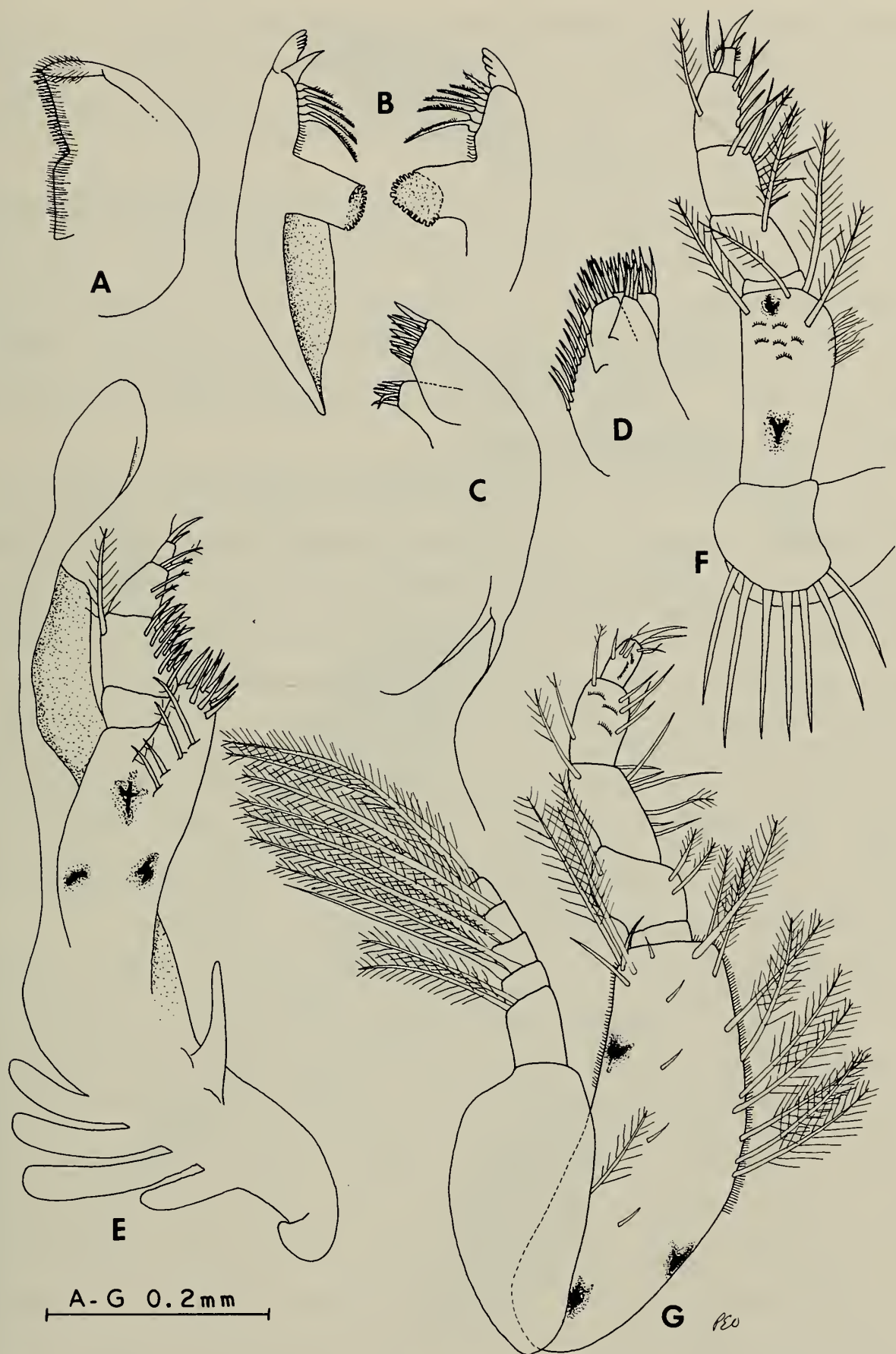


Fig. 2. *Spilocuma watlingi*, new species, ovigerous female: A, Right labium; B, Mandibles, dorsal view; C, Right maxillula; D, Right maxilla; E, Left maxilliped 1; F, Left maxilliped 2; G, Right maxilliped 3, lateral view.

spines; internal margin with 4–5 spines. Article 2 unarmed and $\frac{1}{3}$ article 3. Article 3 with 3 internal rows of spines; distal external surface with 1 plumose seta. Article 4 with 4–5 internal brush setae. Article 5, $\frac{1}{2}$ article 4; armed terminally with 1 strong and 2 minor spines. Branchial apparatus with 1 accessory and 4 branchial lobes.

Second maxilliped (Fig. 2F): Endopod of 6 articles. Basis slightly smaller than combined lengths of remaining segments; distal internal margin with 3 plumose setae; distal external margin with 1 plumose seta. Ischium unarmed and $\frac{1}{6}$ merus. Merus subequal to carpus; distal internal surface with 1 plumose seta. Carpus with 6–8 internal spines. Propodus slightly longer than carpus, with 4–5 internal spines; external surface with 1 plumose seta and 2 spines. Dactylus $\frac{1}{3}$ propodus, terminating in 2 strong curved spines. Coxal segment with 7 setae.

Third maxilliped (Fig. 2G): Basis greater than combined lengths of remaining segments; distal angle not produced; distal lateral margin with 2 long plumose setae and 1–2 small spines; internal margin with 9–10 long plumose setae; longitudinal axis of ventral surface with 4–6 spines; borders of distal half outlined with fine hairs. Ischium $\frac{1}{3}$ merus and lacking spination. Merus with 1 plumose seta on distal external angle and 2–3 plumose setae along internal margin. Carpus subequal to merus; 1 plumose seta on external margin and 7–8 spines along internal surface. Propodus $\frac{3}{4}$ carpus with 1 lateral spine and 1 distal external spine; internal margin with 4 spines; distal half with 4 tufts of hairs perpendicular to longitudinal axis. Dactylus greater than $\frac{1}{2}$ propodus; armed mid-laterally with 1 small spine and terminally with 3 small spines and 2 stout recurved spines (1 spine $\frac{1}{2}$ diameter of other); 2 tufts of hairs on distal half, 1 perpendicular and the other parallel to the longitudinal axis. Exopod of 7 segments.

First pereopod (Fig. 3A): Basis greater than combined lengths of distal articles; 13–16 plumose setae along internal margin; 1 plumose seta on basal external margin; 7–9 small spines along longitudinal axis; distal margin armed externally with 1 long plumose seta and internally with 2–3 plumose setae and 2 spines. Ischium shortest of all segments; distal internal margin with 0–1 spine. Merus 2 times ischium; armed with 2 spines, 1 on distal external margin and 1 on the internal margin. Carpus $\frac{1}{3}$ longer than propodus; armed internally with 3–4 spines and externally with 1–2 distal spines. Propodus slightly smaller than merus; 2 spines along external margin and 3 spines along internal margin. Dactylus $\frac{2}{3}$ propodus, with 2 strong curved terminal spines and 6–7 subterminal spines. Exopod of 7 segments.

Second pereopod (Fig. 3B): Shorter than first pereopod. Basis slightly shorter than combined lengths of remaining articles; 13–15 plumose setae along internal margin; 2 plumose setae on basal external margin; 8–9 simple spines along longitudinal axis of ventral surface; distal margin with 1 internal and 1 external seta. Merus smaller than carpus or dactylus but larger than

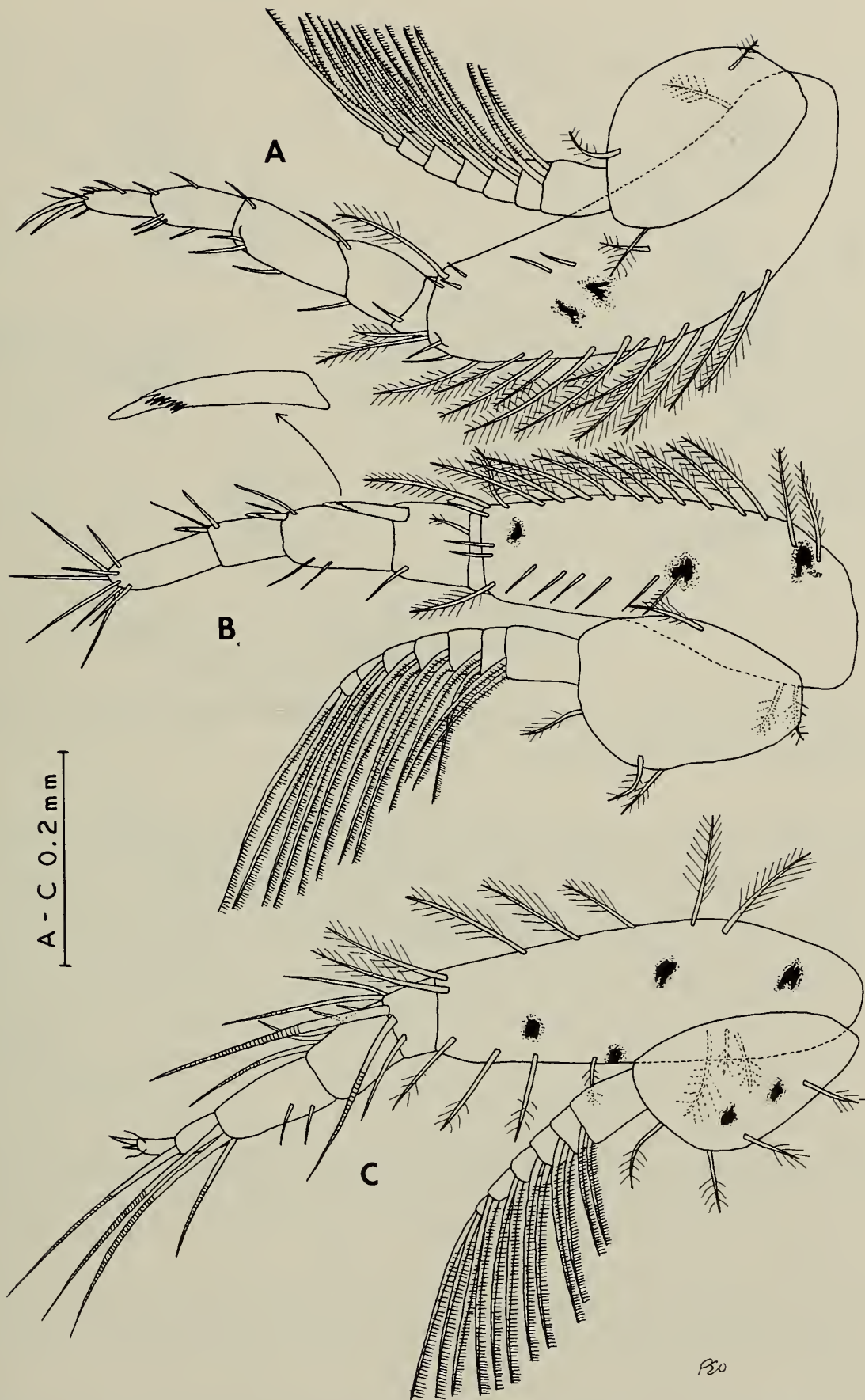


Fig. 3. *Spilocuma watlingi*, new species, ovigerous female: A, Left pereopod 1, lateral view; B, Right pereopod 2, lateral view; C, Right pereopod 3, lateral view.

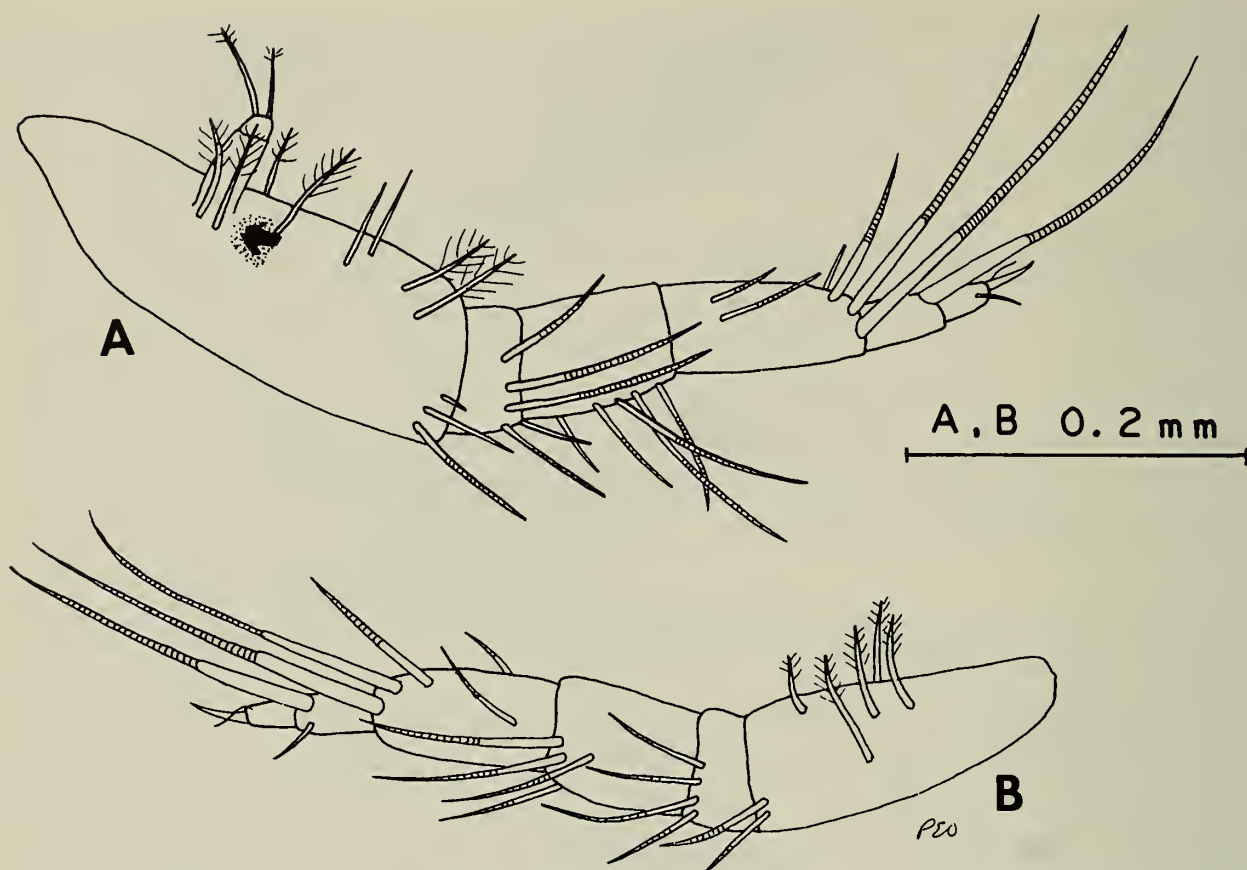


Fig. 4. *Spilocuma watlingi*, new species, ovigerous female: A, Left pereopod 4, lateral view; B, Right pereopod 5, lateral view.

propodus; distal internal margin with 1 strong serrated spine; distal external margin with 1 segmented spine. Carpus subequal to dactylus; 1 strong serrated spine and 2 smaller spines on distal internal margin; distal external margin with 2 short segmented spines. Propodus with 1 strong serrated spine and 2–3 simple spines on distal internal surface. Dactylus with 3 strong terminal spines and 5–6 strong subterminal spines. Exopod of 7–8 segments.

Third pereopod (Fig. 3C): Shorter ($\frac{9}{10}$) than first pereopod. Basis subequal to combined lengths of remaining articles; 2–3 plumose setae along basal internal margin; internal margin with 4–5 simple spines; external surface with 4–5 plumose setae. Ischium $\frac{1}{2}$ merus; distal margin ringed with 5–6 setae (3 setae extending to distal margin of carpus). Merus subequal to carpus; external margin with 4–5 spines. Carpus with 1–2 spines on mid-lateral surface; distal margin with 3 long setae extending past dactylus. Propodus $\frac{1}{2}$ carpus; distal margin with 1 long seta. Dactylus $\frac{2}{3}$ propodus with 1 strong curved terminal spine and 1–2 subterminal spines. Exopod of 7 segments.

Fourth pereopod (Fig. 4A): $\frac{4}{5}$ first pereopod. Basis $\frac{4}{5}$ combined lengths of remaining segments; external margin with 7 plumose setae; distal internal margin with 1 segmented and 2 simple spines. Ischium subequal to propodus; distal surface ringed with 6 segmented setae. Merus 2 times is-

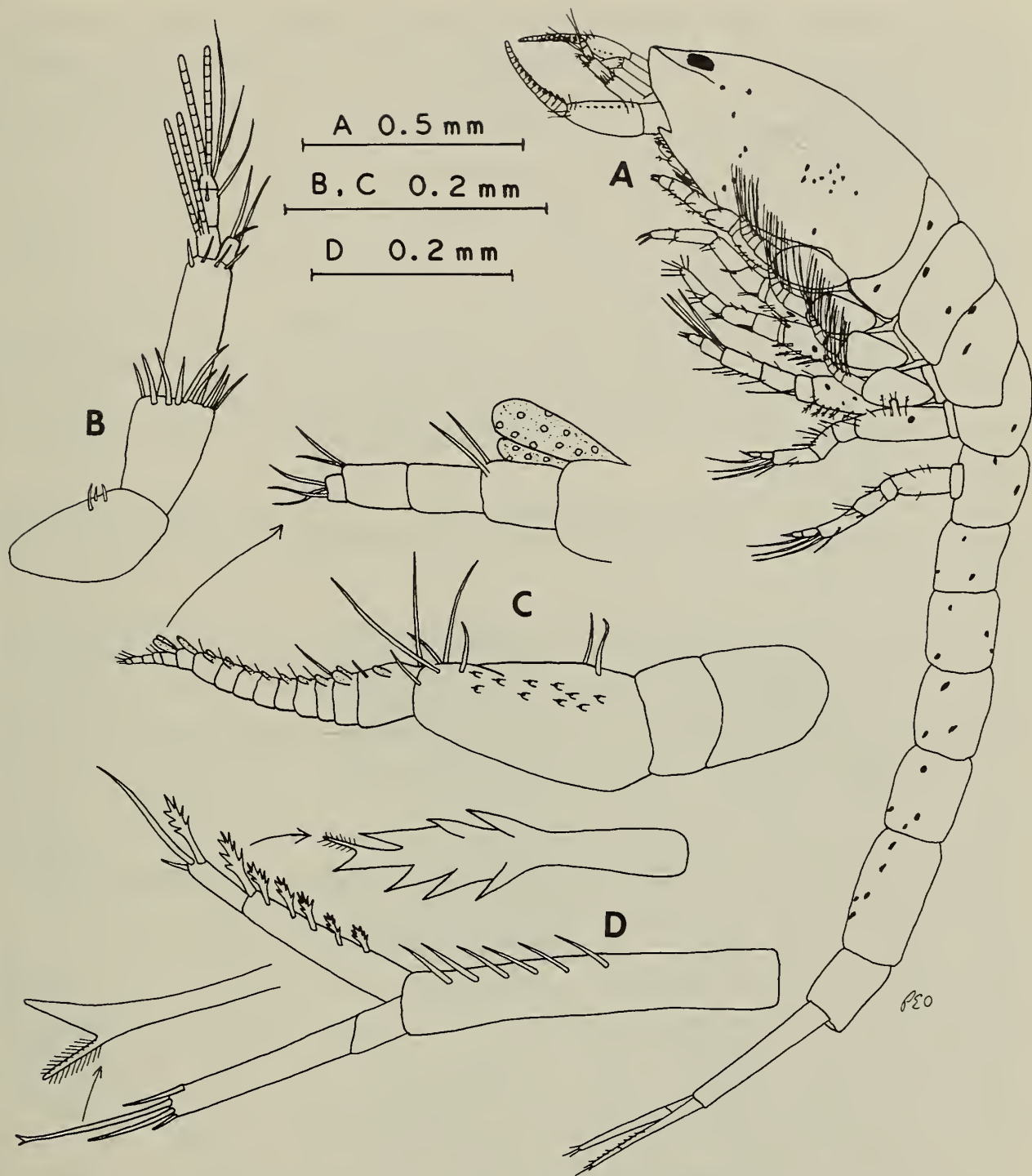


Fig. 5. *Spilocuma watlingi*, new species, adult male: A, Lateral view; B, Right antenna 1, dorsal view; C, Right antenna 2, lateral view; D, Uropod, internal lateral view.

chium; internal margin with 4–5 short segmented setae. Carpus longest of the 5 distal segments; external margin with 2–3 short segmented setae; distal margin with 3 long segmented setae extending past dactylus. Propodus with 1 short spine on longitudinal axis of ventral surface; 1 long segmented seta on distal margin equal to those on carpus. Dactylus $\frac{2}{3}$ propodus; armed with 1 strong recurved terminal spine and 1–2 subterminal spines. Rudimentary exopod indistinctly jointed terminating in 2 branching setae.

Fifth pereopod (Fig. 4B): $\frac{3}{5}$ first pereopod. Basis 4 times ischium; longitudinal axis of ventral surface with 4–5 plumose setae; distal surface with 2 segmented setae. Ischium ringed with 3–4 distal setae. Merus smaller than carpus; distal surface with 3–4 setae. Carpus with 2 setae on distal surface extending past dactylus; internal surface with 2–3 setae. Propodus $\frac{1}{2}$ merus; distal surface with 1 long seta equal to those on distal surface of carpus, and 1 small spine. Dactylus $\frac{2}{3}$ propodus, terminating in 1 strong stout spine. No exopod present.

Uropod (Fig. 1E): Peduncle with 3–6 strong simple spines along inner margin. Endopod of 2 articles, distal article $\frac{1}{3}$ basal article; basal article with 4–6 stout serrated spines along inner margin; distal article with 1 serrated lateral spine and 2 terminal spines. Exopod with 3 lateral and 3 terminal strong spines.

Male (based on 17 adult specimens): T.L. 1.9–2.7 mm. Body and pigmentation pattern similar in appearance to adult female except thoracic keel absent. (Fig. 5A).

Antenna 1 (Fig. 5B): Peduncle of 3 articles; article 1 with 2–3 short lateral spines; article 2 ringed with 12–13 stout distal spines; article 3 longer than articles 1 or 2 with 6 stout distal spines. Flagellum of 3 articles; article 1 subequal to article 2; article 3, $\frac{1}{2}$ article 2. Article 1 with 2 aesthetascs and 1–3 short spines; article 2 with 1–2 short distal spines and 1 long distal seta; article 3 with 2 aesthetascs and 2–3 long setae. Accessory flagellum uniaarticulate and subequal to article 1 of flagellum; armed with 3–4 terminal setae.

Antenna 2 (Fig. 5C): Modified for grasping. Peduncle of 3 articles; articles 1 and 2 without spines; article 3 longer than combined lengths of articles 1 and 2, with 2 basal spines, 5–8 distal setae and 10–12 small mounds with single flagellum along internal axis. Flagellum with 15 articles, each bearing flattened granulated adhesive pads on internal side, except last 4 articles. Article 1 of main flagellum bears 1 pad, articles 2–11 bear 3 pads each; articles 12 and 14 with 2 fine spines and no pads; article 13 without pads or spines; last article (15) of flagellum terminating in 3 fine spines.

Uropod (Fig. 5D): Peduncle inner margin with 5–6 strong spines. Endopod basal article with 5–6 stout pronged spines on inner margin; distal article with 1 lateral pronged spine and 2 terminal strong simple spines. Exopod with 1 lateral and 3 terminal spines.

Holotype.—Ovigerous female, USNM No. 171296; T.L. 3.1 mm.

Paratypes.—7 adult males and 8 females, USNM No. 171297; ♂♂ T.L. 2.0–2.4 mm, ♀♀ T.L. 3.1–4.0 mm.

Type-locality.—Southeastern end of Dauphin Island, Alabama, (30°14'21"N, 88°4'42"W). Depth 1.0–1.5 m.

Habitat.—In the shallow, mesohaline waters of protected beaches adjacent to mouths of bays or estuaries.

Table 1. Selected morphological comparison of *S. watlingi* with *S. salomani*.

Feature	<i>S. watlingi</i>	<i>S. salomani</i>
pigmentation (♂ + ♀)	absent from pleonite 6	absent from thoracic somite 5 and pleonites 3–4
Female		
Antenna 1		
main flagellum	subequal to peduncle 3	½ peduncle 3
Antenna 2		
second article	no spines or setae	plumose setae
Maxilliped 3		
carpus	7–8 internal spines	10–12 internal spines
propodus	4 internal spines	10 internal spines
Pereopod 1		
propodus	3 internal spines	6 internal spines
Uropod		
endopod		
basal	4–6 serrated spines	9–12 spines
distal	1 lateral and 2 terminal spines	3 lateral and 1 terminal spines
exopod	3 lateral and 3 terminal spines	5 lateral and 1 terminal spines
Male		
Antenna 1		
main flagellum	articles 1, 2 and accessory flagellum subequal in length	article 2 > accessory > article 1
Uropod		
peduncle	5–6 spines	6–7 spines
endopod		
basal	5–6 serrated spines	12–15 serrated spines
distal	1 lateral and 2 terminal spines	1 lateral and 4 terminal spines
exopod	1 lateral and 3 terminal spines	2 lateral and 2 terminal spines

Etymology.—This species is named in honor of Dr. Les Watling, Ira C. Darling Center, University of Maine.

Discussion

With the present description of *Spilocuma watlingi* the genus *Spilocuma* now contains 2 species, both recorded from the shallow waters of the eastern Gulf of Mexico. Morphologically *S. watlingi* can be distinguished

from *S. salomani* by: (1) the presence of a dorsal keel on the third thoracic somite of ovigerous females, (2) having fewer spines on the inner margin of both segments of the uropodal endopod, (3) the spination and relative lengths of the thoracic appendages, and (4) the pigmentation pattern. These and other differences between the 2 species are compared in Table I.

Spilocuma watlingi and *S. salomani* also appear to have different habitat preferences. We have examined large numbers of *S. salomani* from the beaches of Panama City and Pensacola, Florida, and Dauphin Island, Alabama. In all instances these samples came from high energy beaches. Samples collected from the protected low energy beaches at the southeastern tip of Dauphin Island contained *S. watlingi* but no *S. salomani*. Collections made on high energy beaches at the middle of Dauphin Island, approximately 4 miles west of the eastern tip, contained large numbers of *S. salomani* and only a few specimens of *S. watlingi*. These limited data suggest that *S. salomani* is restricted to high energy beaches, whereas, *S. watlingi* generally occurs along low energy beaches under more estuarine conditions.

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